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09/817,701	03/26/2001	Shijun Sun	8371-127	9282

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EXAMINER

AN, SHAWN S

ART UNIT	PAPER NUMBER
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2613

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DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/817,701

Applicant(s)

SUN ET AL

Examiner

Shawn S An

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-16, 20-23 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 5, 17-19 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 9, 12, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Andrews et al (4,935,810).

**Regarding claims 1, 9, and 13,** Andrews et al discloses an encoder for encoding an image, comprising:

a processor (Fig. 2A, 350) adapted to identify adjacent blocks in the input image;

compare coding parameter for the adjacent blocks (Fig. 2A, 315); and  
enable and disable (ON/OFF) filtering of blocking artifacts between the adjacent blocks according to the comparisons (Fig. 2A, 303').

**Regarding claim 12,** Andrews et al discloses H.263 and H.261 (col. 1, lines 43-52).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims, 10-11, 20, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al (4,935,810).

**Regarding claims 10 and 20**, Andrews et al discloses all of the claimed limitation as an encoder (Fig. 2A) except the decoder.

Furthermore, Andrew et al discloses a decoder (Fig. 3) illustrating block diagram of an embodiment for decoding images sourced from the encoding arrangement of Fig. 2.

Therefore, it would have been obvious to a person of skill in the art employing an encoder as taught by Andrews et al to incorporate a decoder for reverse (controlling deblock filter) processing the encoder (Fig. 2A) so as to effectively decode the encoded images for displaying purposes.

**Regarding claim 11**, Andrews et al discloses coding parameters in a luminance channel of the adjacent blocks (Fig. 2B, 372); and

controlling deblock filtering for both the luminance channel and a chrominance channel according to identified luminance channel (303"; col. 6, lines 8-21).

Therefore, it would have been obvious to a person of skill in the art employing an encoder as taught by Andrews et al to modify the concept as above so as to identify similarities in the luminance channel for controlling deblock filtering for both the luminance channel and a chrominance channel according to identified similarities

in the luminance channel since such artifacts known in the luminance data are much less severe than chroma-based artifacts.

**Regarding claim 25**, Andrews et al discloses inverse transforming the encoded image, generating a reconstructed image from the comparison between the encoded image and the reference frame (Fig. 2A, elements 320, 322), and skip deblock filtering the reconstructed image according to the coding parameter (PQUANT) for the adjacent blocks (303').

**Regarding claim 26**, Andrews et al discloses transform coefficients (408), motion vectors (col. 7, lines 12-15), and reference frame information (412).

**Regarding claim 27**, Andrews et al discloses skipping deblock filtering in one of a loop filter (Fig. 2A, 303').

5. Claims 2, 14, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al (4,935,810) as applied to claims 1, 13, and 20 above, respectively, and further in view of Bolton (5,768,433).

**Regarding claims 2, 14, and 21**, Andrews et al fails to disclose skipping deblock filtering between the adjacent blocks according to the identified MV and reference frames.

However, Bolton teaches skipping deblock filtering between the adjacent blocks according to the identified MV and reference frames (Col. 11, lines 1-15).

Therefore, it would have been obvious to a person of skill in the art employing an encoder as taught by Andrews et al to incorporate the teachings as above as taught by Bolton so as to skip filtering when the adjacent blocks have similar motion vectors pointing to a same reference image frame as an efficient method to avoid filtering when it is not necessary.

6. Claims 3, 6-7, 15, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al (4,935,810) as applied to claims 1, 13, and 20 above, respectively, and further in view of Kim (5,737,019).

**Regarding claims 3, 15, and 22**, Andrews et al fails to disclose skipping deblock filtering according to the identified residual coefficients.

However, Kim teaches skipping deblock filtering according to the identified residual coefficients (Col. 16, lines 28-35).

Therefore, it would have been obvious to a person of skill in the art employing an encoder as taught by Andrews et al to incorporate the teachings as above as taught by Kim so as to skip filtering between the adjacent blocks when the transform coefficients are similar as an efficient way to avoid filtering when it is not necessary.

**Regarding claim 6**, Andrews et al discloses transforming the adjacent blocks using DCT to generate the transform coefficients (306).

**Regarding claim 7**, Andrews et al discloses comparing blocks in the image with reference frame (302), and transforming the result of the comparison into transformed blocks having transformed coefficients (306).

Andrews et al fails to disclose comparing the similarities between the transformed coefficients, and skipping deblock filtering according to the result of the comparison between the transform coefficients.

However, Kim teaches comparing the similarities between the transformed coefficients, and skipping deblock filtering according to the result of the comparison between the transform coefficients (Fig. 6; Col. 16, lines 28-35).

Therefore, it would have been obvious to a person of skill in the art employing an encoder as taught by Andrews et al to incorporate the teachings as above as taught by Kim so as to skip filtering between the adjacent blocks when the transform coefficients are similar as an efficient way to avoid filtering when it is not necessary.

7. Claims (4, 8), 16, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al (4,935,810) as applied to claims 1, 13, and 20 above, respectively, and further in view of Peng et al (6,618,445).

**Regarding claims 4, 8, 16, and 23**, Andrews et al fails to disclose skipping deblock filtering according to DC components in the residual coefficients.

However, Peng et al teaches disclose skipping deblock filtering according to DC components in the residual coefficients (Col. 6, lines 62-67).

Therefore, it would have been obvious to a person of skill in the art employing an encoder as taught by Andrews et al to incorporate the teachings as above as taught by Peng et al so as to skip filtering between the adjacent blocks when the DC components are similar as an efficient way to avoid filtering when it is not necessary.

### ***Allowable Subject Matter***

8. Claims 5, (17-19), and 24 are objected to as being dependent upon a rejected base claims 1, 13, and 20, respectively, but would be allowable: if claim 5 is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims; and if claim 17 or claim 18 is rewritten in independent form including all of the limitations of the base claim 13 and any intervening claims; and if claim 24 is rewritten in independent form including all of the limitations of the base claim 20 and any intervening claims.

**Dependent claims 5, 17-19, and 24**, recite the novel features, and the art of record fails to anticipate or make obvious the novel features as specified in the claims 17-19 and 24. Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) Yuan (5,367,385), Method and apparatus for processing block coded image data to reduce boundary artifacts between adjacent image blocks.

B) Hayashi et al (6,041,145), Device and method for smoothing picture signal, device and method for encoding picture and device and method for decoding picture.

C) De Haan et al (5,072,293), Method of estimating motion in a picture signal.

Art Unit: 2613

D) Keith (5,329,318), Method for optimizing image motion estimation.

10. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Shawn S An** whose telephone number is 703-305-0099. The Examiner can normally be reached on Flex hours (10).

12. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SSA

SHAWN S AN  
PATENT EXAMINER

Primary Patent Examiner

3/20/04